

RUPPNER (A.)
WITH COMPLIMENTS OF THE AUTHOR.

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PRACTICAL LARYNGOSCOPY.

SECOND SERIES.

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LARGE FIBROUS POLYPUS, (FIBRO-SARCOMA-POLYPOSUM), IN THE
LARYNX, REMOVED BY THYROTOMY, PRECEDED BY
LARYNGO-TRACHEOTOMY.

(WITH COLORED PLATE.)

BY

A. RUPPNER, A.M., M.D. (HARVARD.)

PHYSICIAN TO THE NEW YORK DISPENSARY FOR DISEASES OF THE THROAT
AND CHEST, MEMBER OF THE AMERICAN MEDICAL ASSOCIA-
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COUNTY OF NEW YORK.

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DESCRIPTION OF THE PLATE.

- Fig. 1. Fibro-Sarcomatous Polypus in the larynx, filling nearly the entire contour of the supra-glottic space as seen in the laryngeal mirror before operation, during expiration.
- Fig. 2. The same after removal by the operation of Thyrotomy, and laid open in the median line, from apex to base.
- Fig. 3. Appearance of the interior of the larynx, six weeks after the operation.
- Fig. 4. Appearance of the patient two months after the operation of Thyrotomy, and four months after the operation Laryngo-Tracheotomy. The canula is still worn.

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LARGE FIBROUS POLYPUS, (FIBRO-SARCOMA-POLYPOSUM), IN
THE LARYNX, REMOVED BY THE OPERATION OF THYROTOMY,
PRECEDED BY LARYNGO-TRACHEOTOMY.

Mr. Abraham Ellinger, born in Bavaria, Germany, married, father of four children, the oldest twenty-seven, the youngest eleven, aged fifty-six, merchant, came to America in 1840. His father died at the age of seventy-five of apoplexy, his mother when sixty-eight, cause unknown.

Ellinger, an industrious, frugal man of excellent habits, always enjoyed good health, till in summer of 1864, when he made an excursion with his wife to Rockaway. Being exposed to a severe thunderstorm he got wet, and in consequence caught a severe cold from which he never entirely recovered.

During the two years following, 1864 to 1866, his voice was husky, and continued, perceptibly, to get so more and more. In the fall of 1866 he was seized with attacks of nausea, which gradually increased, and from one Friday afternoon till Sunday following continued uninterruptedly, when suddenly, during that Sunday, the nausea left him and he was attacked with a sensation of severe choking, which lasted till midnight of that day.

Dr. Michaelis, of this city, being called in, prescribed remedies

which relieved Mr. E. much, so that by morning he was free from his sufferings.

The day following, Monday, patient was seized with cramps in the stomach, which, in spite of proper remedies, continued in varying degree till the spring of 1867. During all this time the hoarseness continued to increase, so that finally his voice was rough, husky, and at times nearly extinct.

Dr. Henschel, being also consulted about this time, ascribed the disease to the stomach (catarrh of the stomach), and ordered Vichy water, from the constant use of which the patient derived decided benefit, so far as the stomach symptoms were concerned.

But in proportion as the stomach improved, the throat got worse. Mr. E. states, that about this time he felt, especially when swallowing, as if something rough was moving up and down in his throat.

Advised now, February, 1867, to consult Dr. Simrock, that gentleman, after having made a laryngoscopic examination, assured the patient that he could see nothing within the larynx to account for the hoarseness at that time, but stated that there was follicular disease of the mucous membrane of the larynx, to which a solution of nitrate of silver was applied, eight times, but without giving the desired relief to the patient. The disease was, moreover, located in the stomach, as the gentlemen previously consulted had done.

Mr. E. now returned again to the care of Dr. H., and continued under that gentleman's treatment for six months, with much benefit to his general health. The hoarseness on the other hand continued to increase, still being ascribed to a severe cold.

From fall 1867, till spring 1868, all treatment was discontinued, and the case left to the tender care of "*vis medicatrix nature*." During the summer of 1868 E. took sea-baths, by the use of which his general health was benefited, as he thought—the hoarseness continuing, however, the same.

In the fall of 1868 Mr. E. began now to have attacks of dyspnœa at night, during which he felt, as he expresses it, as if his throat was swelling up to undue proportions. In this condition, whilst the attacks lasted, he often felt as if he should suffocate. He now was generally obliged to set up all night, as he was unable to breathe while laying down. Remedies administered by his attending physician at times relieved him, though

slightly and temporarily only. Thus he continued till in January or February of 1869, when he had the worst attack of dyspnœa he had experienced yet. He thought he could not live through it. Felt as if he was threatened with immediate suffocation.

Dr. H., seeing him at this period, again inspected the fauces, but declared he could see nothing to account for the distress the patient experienced. The theory of a bad cold was still adhered to.

Thus E. continued till spring, 1870, having from time to time these severe attacks of dyspnœa. The voice was entirely gone: he could only speak in a whisper accompanied with great exertion.

It was now deemed advisable that patient should make a sea-voyage, and for that purpose embarked in the steamer for Bremen, May 17th, 1870. Visiting a sister of his in Erlangen, Professor Herz of that city was consulted. The disease was pronounced catarrh of the stomach, so I am informed by Mr. E., and a sojourn at Kissingen was recommended. During the time patient remained in Kissingen, he took, besides drinking the water, twenty-eight baths, and felt himself so much improved—so far as the stomach symptoms were concerned—that, at the end of four weeks, he returned to Erlangen.

Having placed himself again under the care of Professor Herz, that gentleman took him to Dr. Maurer, who, upon a laryngoscopic examination, was the first, so far, to diagnose the existence of a large polypus in the larynx, which diagnosis at once solved the question as to the origin and cause of the frequent attacks of dyspnœa. Dr. Maurer advised Mr. E. to leave at once for Tübingen, Württemberg, to place himself there under the care of Dr. Victor Von Brüns, the distinguished professor and surgeon, than whom no living laryngoscopist has had more ample experience or greater success in the removal of foreign growths from within the cavity of the larynx, with the sole exception, perhaps, of my distinguished friend, Doctor Morell Mackenzie, of London.

Tübingen was reached by Mr. E. on the 28th of July, 1870. The following day Professor Von Brüns, at the first examination, diagnosed a large polypus in the cavity of the larynx. Owing to the irritable condition of the patient's throat, eight days were spent in efforts to establish a certain degree of tolerance, preparatory to active operative interference.

August 6th, 1870. laryngo-tracheotomy was performed by Von Brüns, to relieve the patient of his constant attacks of dyspnoea, and as a necessary preliminary to the removal of the polypus. He experienced no trouble from the operation, sat up in his room on the fifth day after it, and on the eighth day he went out of doors.

Meanwhile daily examinations of the growth were made, when, owing to the breaking out of the Franco-German war, Professor Von Brüns was suddenly called away into active service. Thus the patient remained in statu quo. Dr. Hochstetter, however, took charge of Mr. E. temporarily, and the self-education of the larynx was again practised three or four times a day, varying from three quarters to one hour daily. In fourteen days all irritability had subsided, and a fair degree of tolerance of the larynx was established. After an absence of five weeks Professor Von Brüns returned to Tübingen, which brings us to the middle of September. On Saturday, following his return, he removed by means of his *écraseur* the large polypus from E.'s larynx, of the size, nature and character of which, I regret to say, do not possess any particulars. Most probably this instructive and important case will be given to the profession ere long by the learned professor, with his comments. From the patient I learned, on the other hand, that he experienced little or no pain during the removal of the polypus; that he could swallow without difficulty immediately afterwards; that his voice returned to him almost instantly, though not so clear in tone as formerly; it remained husky. Three days after the operation the canula was also removed from the trachea. About that time E. had some uncomfortable sensations in his throat, as if there was something rough or strange in it, but this disagreeable feeling soon subsided. One week later he left Tübingen for Erlangen, where he remained at his sister's house for two weeks. During this visit patient took a severe cold, which confined him to the house and bed four or five days. The cicatrix in the trachea became very much inflamed. As soon as able to travel, E. returned to Tübingen. Professor Von Brüns being absent, Dr. Hochstetter attended him for seventeen days.

Upon his return the professor made a laryngoscopic examination, whereupon he pronounced the case sufficiently recovered.

He advised Mr. E. to return undisturbed to America, who re-embarked November 12th, 1870, at Bremen for New York.

The voyage was very severe and boisterous, lasting seventeen days from port to port: fifteen out of the seventeen days they had to contend with gales and rain. The patient's stateroom being deluged with water, he got wet and caught a severe cold. Already on board the steamer the former hoarseness returned. This hoarseness kept increasing from day to day till he disembarked, November 30th. One week later and his voice was gone altogether. Continuing to get worse, losing strength from day to day, perceiving that the dyspnoea was also returning and perceptibly increasing, Mr. Ellinger, after having received no medical treatment whatever, from the time he left Tübingen in November, 1870, consulted me February 13th, 1871, having been kindly referred to my care by my friend Professor Von Brüns.

Status of patient, February 13th, 1871.—Ellinger speaks only in a whisper and with great effort. Severe cough is excited by speaking, and often causes the conversation to be interrupted. Complains of difficulty of breathing, which, as he declares, is owing to an obstruction in the throat. Expectorates a great deal of thick, viscid, ropy mucous, which he raises with difficulty. Complains also of pain, at times severe, in the region of the stomach. Food, even the simplest, is digested with difficulty, and causes for hours after eating a feeling of pressure in the stomach. Appetite poor and variable. Fluids are swallowed with more difficulty than solids. Is emaciated, feels languid, pulse thin and accelerated, skin clammy, color of countenance livid, expression anxious.

Laryngoscopic Examination.—The patient's throat is well adapted and trained for laryngoscopic examination. Pharyngo-laryngeal mucous-membrane highly congested. The mirror reveals the presence of a large pyriform polypus, filling nearly the entire supra-glottic space of the large larynx of the patient. The free, broad base of the polypus approaches nearly the right side of the wall of the larynx, the more pointed extremity or apex is placed parallel to the centre of the free base or border of the polypus. At the under but invisible side of this apex is its attachment; but the exact position of this attachment, whether to the false or true left vocal cord, or to the ventricle, or its

exact nature, whether by a broad or narrow pedicle or base. I was unable to determine at that stage of the examination.

Figure 1 (vide plate) represents the polypus in position as seen in the laryngeal mirror during frequent examinations. The size is taken from actual measurements immediately after removal by operation, and just before being photographed by Mr. Bogardus, photographic artist in this city.

Taken in connection with the contour of the larynx as represented in figure 1, we see the position of the growth during inspiration, and the black space to the left in the drawing, near the polypus, (but representing the right side of the larynx of the patient), shows exactly the space remaining free and open, through which the patient was actually breathing and receiving his supply of air when he first came under my care.

During action, forced respiration, or when made to intonate the German diphthong "æ," the polypus was somewhat raised, and the free, open space between it and the wall of the larynx was considerably diminished. Just before the operation this space was nearly entirely closed up by the growth.

The exposed surface of the polypus as seen by the laryngeal mirror was irregular, formed alternately of irregular elevations and depressions, some of these exceedingly well marked and quite deep.

The color of the growth was dark purple red, now and then interspersed with yellowish spots, apparently quite superficial: along and in the depressions the color is more pronounced and deeper than in the elevations.

Touched with a probe, the substance of the polypus seemed rather elastic, and from the fact that a growth, most probably similar in its appearance and nature, had appeared there before, been removed, and recurred the second time so rapidly, I felt disposed to class it as a recurrent fibrous growth.

Examination of the chest further revealed the presence of chronic bronchial catarrh, to which must be added his unmistakable symptoms of catarrh of the stomach, from which latter complaint the patient had, no doubt, suffered for years, and towards the relief of which the efforts of all his attending physicians had been directed.

I now informed Mr. E. that the only course to be adopted was to repeat the operation of laryngo-tracheotomy, in order

to give him a chance to live, and afterwards to have the polypus removed by whatever operative means that might be considered best. On account of the feeble condition of the patient, however, I concluded to defer laryngo-tracheotomy for a short time, directing my attention to the improvement of the digestive functions. I prescribed subnitrate of bismuth with small quantities of sulphate of morphia, gave tonics and stimulants.

At the second visit of E. to my office, I called Dr. John J. Crane and Professor James R. Wood into consultation, to whom the polypus was exhibited in situ then, and upon several other subsequent consultations. Both these eminent physicians pronounced upon the early necessity of the operation of laryngo-tracheotomy, and the subsequent removal of the growth by a second operation.

At the annual meeting of the Board of Trustees of the New York Dispensary for Diseases of the Throat and Chest, in February, 1871, I again demonstrated the polypus by the aid of my large oxygen calcium-light Laryngoscope, manufactured for me by Gallante, in Paris, to the medical members of the board then present, viz.: Drs. T. Gaillard Thomas, J. Marion Sims, Max Herzog, J. J. Crane, and James R. Wood. My indefatigable assistant, Dr. D. V. Zolnowski, examined the patient also almost daily, watching the progress of the growth from day to day, as did also Drs. E. J. Whitney and B. M. Keeney.

The result of these oft-repeated examinations removed all doubt as to the rapid progress of the growth, filling then nearly the entire supra-glottic space. The dyspnoea grew also daily worse. Drs. John J. Crane, James R. Wood, and myself held another consultation, March 11th, the patient being present, when the operation was determined upon for the following day, at 2 P. M.

Operation of Laryngo-Tracheotomy, March 12, 1871.—Besides the valuable assistance and counsel of my friend Dr. J. J. Crane, there were present, Drs. Zolnowski, E. J. Whitney and B. M. Keeney.

The patient was seated upright in a chair, and his head held by Dr. Keeney. No anaesthetics used. I made first an incision, following closely the line of the cicatrix of the former operation. The skin, fascia, etc., being divided, the cricoid cartilage and upper ring of the trachea were found to be very callous in the

line of the former incision, the age of the patient contributing largely to this. The division of these was therefore found somewhat laborious. When, however, I had succeeded in dividing them, the patient, before I could introduce the canula, became so exhausted that he nearly fainted: his pulse fell rapidly, and his countenance became livid. Some blood must also have passed into the bronchial tube. For a few moments the state of things was critical in the extreme. I now kept the parts at the point of the incision firmly open, and had him moved close to the open window. By the liberal administration of stimulants, strong efforts to breathe and expectorate, some clots of blood were finally coughed up and expelled through the artificial opening. The canula was now introduced, and Mr. E. was safe, thanks to the strenuous exertions of Dr. Crane and my other faithful assistants.

He was now removed to his bed, the wound dressed with cold compresses, and stimulants administered. The process of breathing was carried on quite easily through the canula, and I left him in as comfortable a condition as could be expected.

Shortly after I reached my office, a messenger informed me that Mr. E. could not bear the canula in the throat, that it caused him severe paroxysms of coughing; that he, Ellinger, took the tube out, and now could scarcely breathe.

I hastened to the scene, when I found my assistant, Dr. Zolnowski, who resides near the patient, already on the spot. He had already succeeded in replacing the canula. Pulse 100 per minute, cold compresses renewed every fifteen minutes, stimulants and beef-tea were ordered. For greater safety, I requested Dr. Zolnowski to remain with the patient till next morning, so as to be on hand for any emergency that might arise.

About half-past ten, the same evening, I was hastily summoned, being informed that the patient was dying. When I arrived at the house, I found E. exhausted from constant, severe and prostrating attacks of coughing, saying at the same time, that he could not bear the canula in the throat.

Upon examination I became satisfied, that the canula caused a great deal of irritation, probably from too great pressure upon the surrounding parts. I decided therefore, to enlarge the incision about one quarter of an inch in both directions, upwards and downwards, and to insert a little larger and longer canula

This process was accomplished without difficulty, the canula inserted and secured. Mr. E. felt much easier, could take a deeper inspiration, and the cough ceased almost entirely before I left the house. Large quantities of viscid, white mucous were expectorated through the canula.

The following morning, March 13th, I found the patient had passed a very comfortable night, pulse 90, desires food. The wound looked healthy, caused no uneasiness, and he coughed only to expectorate. One week from the day of the operation, E. sat up; the parts, so far as necessary, had united by first intention. In two weeks more he went out-doors, was able to visit me, and I renewed my examinations of the polypus and its progress. About this time he was also again seen by Drs. J. J. Crane and James R. Wood, whose interest in the case continued unabated. The constant progress of the polypus could easily be marked. What little free space there had been left in the supra-glottic contour of the larynx, was soon completely filled, and no air whatever passed except through the canula. The patient's aversion to a second operation, as well as his want of strength, naturally were strong arguments for postponing the removal of the polypus, until he began to feel some inconvenience in swallowing.

MODUS OPERANDI FOR THE REMOVAL OF THE POLYPUS.

Whether to attempt to remove the growth *per vias naturales*, or by extra-laryngeal operation—thyrotomy—was now the step to be considered. The former operation—*per vias naturales*—was indicated:

1st. By the diminished amount of danger incurred, as compared with the more dangerous operation of thyrotomy.

2d. By the more certain prospects of preserving the voice of the patient.

3d. By his more rapid recovery.

The contra-indications to the above procedure, and indications for the more dangerous operation of thyrotomy in this case were:

1st. The great size of the Polypus, filling, as it did completely, the supra-glottic space of the larynx.

2d. The impossibility of adjusting, under the circumstances,

a wire loop or an *écraseur* sufficiently, if not around the whole, at least around a part of the growth, for the purpose of extirpation.*

3d. The impossibility of ascertaining the nature of the attachment of the polypus, whether by a broad base, or a narrow pedicle.

4th. The rapid recurrence of the growth in the same parts and position, five months only having elapsed from the time of the first operation by Prof. Von Brüns, in September, 1870, to the time I saw the patient first, February, 1871, when the contour of the supra-glottic space was already nearly closed.

5th. The possibility of applying *the actual cautery* to the interior of the larynx, after it had been laid open by thyrotomy, thereby diminishing the chances of an early recurrence of the growth.

All these points being carefully weighed at a consultation held May 1st, between Prof. James R. Wood, M. D.; Dr. John J. Crane, and myself, the operation of thyrotomy was decided upon at once. Most unpropitious weather prevented, however, the same to be executed before May 8th.

OPERATION OF THIYROTOMY.

Present, Drs. John J. Crane and Prof. James R. Wood, consulting physicians and surgeons: Drs. D. V. Zolnowski, B. M. Keeney, E. J. Whitney, Alexander, Rubino, L. S. Pilcher, U. S. Navy; Walker, and several other medical gentlemen, whose names have escaped me.

Anæsthetics were administered through the canula in the trachea by Dr. Walker. I now divided the skin from the base of the os hyoides to the upper border of the cricoid cartilage. In dividing the fascia a branch of the thyroid artery was found laying across the notch formed by the union of the thyroid cartilages, and was tied. The thyro-hyoid membrane was now sufficiently divided, whereupon I separated with scissors, the blades of which were fixed at an obtuse angle, the thyroid cartilages in the median line, from above down to the upper border

* In this connection I desire to express my sincere thanks to Prof. Von Brüns, of Tübingen, for his kindness in sending me one of his latest and very ingenious *écraseurs*, intended for the removal of growths similar to the one in question.

of the cricoid cartilage, including the thyro-cricoid membrane. This was by no means easily accomplished, as it required all the strength I could apply with both hands, on account of the ossification of the thyroid cartilages, accounted for by the advanced age of the patient.

The cartilages once divided and laid open, the polypus, upon inspection, was seen to lay in the space frequently indicated, attached to the inferior surface of the left vocal cord by a pedicle. The parts being held widely apart by Dr. Crane, Dr. Wood introduced his fingers under the polypus, and pushing it upwards, being readily separated from its attachment, I was enabled to seize it by introducing my fingers into the mouth of the patient. The hemorrhage that immediately followed, though considerable, caused no difficulty. No blood passed into the chest. Upon close inspection, the entire mass was found to have been removed, and I now applied the actual cautery to the intralaryngeal space. The thyroid-cartilages were now brought together, carefully readjusted by the wire suture; the integument united by the requisite number of stitches, and the parts dressed with cold compresses, ordered to be renewed every fifteen minutes.

The patient, who had borne the operation exceedingly well, was able to walk from the operating table to his bed without assistance. An opiate was administered later to insure rest for the night: stimulants and beef-tea given. My assistant, Dr. Zolnowski, passed the entire night with Mr. E., so as to superintend the management of the case and its requirements.

The polypus, examined soon after the operation, was found to be ovoid in shape, irregularly lobed, and bluish-red in color. Its weight was one hundred and thirteen (113) grains, weighed upon the most exact balance of Messrs. Caswell, Hazard & Co.'s establishment.

Measurements taken at the establishment of Mr. Bogardus, before the specimen was photographed:

Length of Polypus, -	-	-	-	-	$1\frac{1}{6}$ inches.
Width, -	-	-	-	-	$1\frac{3}{16}$ inches.
Diameter when laid open in the median line,					$1\frac{1}{2}$ inches.

Figure 1 (vide plate) has already been described, page 10, the reader is therefore referred to that page for a description.

Figure 2 (vide plate) represents the polypus divided in the median line, the point of its attachment forming the apex, and the broad, free extremity of it, the base of the figure. The grayish-white, round, cell-shaped forms, represent cells with their nuclei, some small, some large, found in considerable number upon the surface of the section. This drawing was also executed from a photograph taken immediately after the operation.

But to return to the patient. The next morning, May 9th, I found Mr. E. had passed quite a comfortable night. He suffered little pain, with the exception of some discomfort in swallowing. Pulse 95 to 100. The wound, under the constant application of cold compresses, progressed satisfactorily, and union by first intention took place. The parts were kept clean by injections of tepid water from time to time.

Mr. E. was confined to his bed three weeks, and to the house four. When I made my first laryngoscopic examination about this time, I found the parts united: the right vocal cord uninjured and in good condition, but the left vocal cord was impaired. There were no indications of a return of the disease.

Figure 3 (vide the plate) represents the interior of the larynx about one month after the operation. The cicatrix is in the median line of the epiglottis, where it was divided. The left vocal cord, to which the polypus was attached, is injured, while the right one remains perfect. The intervening space is free and open. The voice, of course, is lost.

Such was the state of things that existed still, two months after the operation. But soon the dread enemy made its appearance externally, in the shape of excrescences, arising from the margin of the opening in the trachea and the surrounding tissues, and which, upon microscopic examination, proved to be of the same nature as the growth lately within the larynx. I have now removed these excrescences twice with the knife: still they return rapidly in spite of the most careful dressings, local application of Munsell's solution, alteratives, like Fowler's solution, tonics and stimulants administered internally.

Figure 4 (vide plate), copied from a photograph taken about one month ago, represents Mr. E. after I had removed the excrescences. The canula is worn, but the lesion from the operation of thyrotomy is entirely healed.

Although Mr. E. goes out daily, visits me often, still the constant recurrence of the growth externally, exactly in the same form as within before, renders his future sufficiently grave, and the prognosis of the case unfavorable in the extreme.

MICROSCOPIC EXAMINATION.

Two specimens were examined.

1st. The polypus removed from the larynx.

2d. A portion of the excrescence which was removed by me later, growing externally around the canula.

EXAMINATION AND REPORT BY DR. FRANCIS DELAFIELD.

"Two specimens were received for examination—an ovoid tumor, and a small rounded mass, said to be a local recurrence.

"I. The tumour is ovoid, irregularly lobed, and seems to have been attached by a narrow pedicle. The tissue is compact, except for a number of small cavities, some superficial and some deep. There is no epithelium on the surface of the tumor; it has probably been rubbed off. The tumor is composed of connective tissue fibres and cells. The fibres are in some places in the form of many bands, but mostly in the form of branched connective tissue, forming a reticulum, with small meshes, in which are imbedded cells.

"The cells are round, fusiform and stellate, all of the connective tissue type. In some places fusiform and round cells are closely packed, with but little intervening stroma. The cavities in the tumor are lined with pavement epithelium. There are also a number of microscopic cavities of the same appearance lined with pavement epithelium. These aggregations of epithelium are probably due to an overlapping and incarceration in the course of the growth of the tumor, by which portions of pavement epithelium from the surface have become surrounded by the new growth.

"II. The portion of tissue said to be a local recurrence, has exactly the same structure as the tumour, except that it contains no cavities.

"The structure of the tumour is that of the fibrous polypi of

the larynx and other mucous membranes. The cells, however, are more abundant than is usual. Judging from the number of cells and the rapid recurrence of the growth, it seems proper to class the tumor with the sarcomata under the special name of fibro-sarcoma polyposum."

Here I shall close, for the present, my report of this interesting, important and instructive case, reserving for a future occasion some further observations in regard to it and its final result.

To Dr. John J. Crane and Professor James R. Wood, M. D., both of whom have been associated with me in this most critical case from the beginning as consulting surgeons, and to whose encouragement and counsel I owe much of whatever success was obtained, I desire to express my sincere gratitude. To my assistant, Dr. Zolnowski, who for weeks visited the patient with me, I am also much indebted for his zeal.

